Exhibit 5.01(a)(xii)
GM-Delphi Technology Transfer Agreement
between Delphi Technologies, Inc. and GM, dated December 4, 1998

Exhibit G-5

4 December 1998

GM – DELPHI
TECHNOLOGY TRANSFER AGREEMENT

This Technology Transfer Agreement is between General Motors Corporation ("GM") and Delphi Technologies, Inc. ("Delphi").

The parties enter this agreement to establish rights in Technology owned by GM prior to the separation of Delphi from GM.

Capitalized terms are defined in section 4.

1 - Assignment of Technology to Delphi

1.1 GM hereby assigns to Delphi its interest in the Delphi Technology, together with the right to sue for past misappropriation. Such assignment is subject to the rights of joint owners, and to rights granted to others prior to the Effective Date, and is effective on the Effective Date.

1.2 GM hereby assigns to Delphi a joint ownership interest in the Common Technology, including the right to sue for past misappropriation. Such assignment is subject to the rights of joint owners, and to rights granted to others prior to the Effective Date, and is effective on the Effective Date. By this assignment, the parties intend to establish a tenancy-in-common with respect to the Common Technology. Each party may exercise all incidents of ownership in the Common Technology without consulting with or accounting to the other, and accordingly may use and authorize others to use all Common Technology to make and sell products and provide services to others, except as set forth in this agreement. However, GM and GM Affiliates may not license Common Technology to Delphi Affiliates, and Delphi and Delphi Affiliates may not license Common Technology to GM Affiliates. The right to use Common Technology also is subject to the rights reserved in the Intellectual Property License Agreement executed herewith between the parties, and to rights granted to others prior to the Effective Date.

1.3 GM further assigns to Delphi its interest in the Technology identified in clause 2 of this agreement as owned solely by Delphi, and a joint ownership interest in the Technology identified in clause 2 of this agreement as owned by both Delphi and GM. Such assignment is subject to the rights of joint owners, and to rights granted to others prior to the Effective Date, and is effective on the Effective Date.

2 - Restricted Technologies

2.1 Vehicle information management relationship

Schedule A reproduces the terms established for the parties' relationship relating to certain vehicle information management technology. Those terms will continue in effect as stated.

2.2 Algorithm relationships

(a) Schedules B through I list algorithms for which disclosure or use of the related technology by GM or Delphi may be restricted.

(b) For each item in schedules B through I, the word "own" or "owns" identifies the party which owns all intellectual property rights and interests in the item.

(c) For product technologies in schedules B through I (in each case, subject to the provisions of clause 2.2(e)):

- the letter U under Delphi associated with a product technology means Delphi may use, modify and disclose the technology without restriction.

- the letter U under GM associated with a product technology means GM may use, modify and disclose the technology without restriction.

- the letter R under Delphi associated with a product technology means Delphi and Delphi Affiliates may not disclose the technology, or supply products based on the technology, to anyone other than GM and Designated GM Affiliates.

- the letter R under GM associated with a product technology means GM may use and modify (and authorize GM Affiliates to use and modify) the technology but may not disclose the technology to anyone other than Delphi and Designated Delphi Affiliates.

(d) For development tools in schedules B through I (in each case, subject to the provisions of clause 2.2(e)):

- the letter U under Delphi associated with a development tool means Delphi may use, modify and disclose the tool without restriction.

- the letter U under GM associated with a development tool means GM may use, modify and disclose the tool without restriction.

- the letter R under Delphi associated with a development tool means Delphi may use and modify (and authorize Delphi Affiliates to use and modify) the tool to develop products for other customers, but may not disclose the tool to those customers or anyone else.

- the letter R under GM associated with a development tool means GM may use and modify (and authorize GM Affiliates to use and modify) the tool but may not disclose the tool to anyone.

(e) Schedules B through I indicate some items for which GM and the Delphi Business Sector have agreed on variations from or additions to the foregoing restrictions. Schedule J reproduces terms established for the relationship between GM and the Delphi Business Sector relating to certain powertrain matters, and may include variations from or additions to the foregoing restrictions. Other prior agreements between GM and the Delphi Business Sector also may vary or supplement the foregoing restrictions. The variations and additions indicated in schedules B through J or other such prior agreements override the restrictions set forth in clauses 2.2(c) and (d).

(f) Schedules B through I indicate a few items for which the parties have agreed on a limited period during which Delphi and Delphi Affiliates may not sell products based on the related technology to others. In addition, Quadrasteer will be subject to the agreement (if any) resulting from current negotiations between the Delphi Business Sector and GM Truck Group, the magneto-rheological fluid controlled damper will be subject to the agreement (if any) resulting from current negotiations between the Delphi Business Sector and Adam Opel AG (a GM Affiliate), and the Low Cost Telematics, Galileo Dry Interface Brake, and TraXXar with Slide Slip Control will be subject to the agreements (if any) resulting from current discussions between the Delphi Business Sector and other GM business sectors. The terms of the agreements referenced in this section (f) will remain in effect only for the agreed period.

(g) For any item in schedules B through J covered by a patent, the restrictions will remain in effect only for the term of the patent. For any item in schedules B through J not covered by a patent, the restrictions will remain in effect only until the related technology becomes known to the public other than through a wrongful act by the party so restricted, or becomes lawfully available from another source, or is independently developed by the party so restricted; or until both parties agree in writing that the restrictions no longer apply. (If the terms of an agreement reproduced in schedule J differ from this clause 2.2(g), the terms of that agreement override the provisions of this clause 2.2(g) for purposes of that agreement.)

(h) Schedules B through I apply only to versions of the indicated algorithm technology created prior to the Effective Date. Transfers (if any) of algorithm

technology created after the Effective Date will be subject to the terms of the agreements (if any) relating to such transfers.

(i) The parties may vary the terms of this clause 2.2 by written agreement at any time in the future, either with respect to Technology on a particular item or with respect to all Technology.

(j) The parties believe GM and GM's Affiliates and the Delphi Business Sector are in full compliance with the restrictions set forth in this clause 2.2, and will interpret this clause 2.2 in accordance with that belief.

2.3 Fuel cell relationship

Schedule K reproduces the terms established for the parties' relationship relating to certain fuel cell technology. Those terms will continue in effect as stated.

2.4 Licensed software tools

Schedule L identifies certain software tools licensed by the Delphi Business Sector to GM and/or GM Affiliates. GM may disclose and use such tools only to the extent provided in such license arrangements.

3 - Other provisions

3.1 Access to drawings

(a) The parties will cooperate to create, maintain, update, and share technical information, such as component detail drawings, specifications and math geometry, models and data, about products supplied to GM by the Delphi Business Sector prior to the Effective Date and their manufacture and related information, as needed for litigation and regulatory purposes and engineering reference, and in compliance with GM's drafting and math standards.

(b) Delphi will provide GM with access to test lists and test standards applicable to a component supplied to GM by the Delphi Business Sector prior to the Effective Date if a Delphi Affiliate sells the business relating to that component.

(c) Delphi owns or is responsible for several tests (MTL) and test standards (GMUTS). Delphi will review these test procedures to identify and remove Delphi proprietary design information, will rewrite these procedures as GM generic documents that GM can utilize to execute its business, and will provide the rewritten procedures to GM. These will become GM domain. (This includes any proving grounds driving and test schedules, but does not pertain to non-MTL Delphi component lab test procedures.)

3.2 Indemnity for use of Technology

(a) Neither party makes any representation or warranty of any kind whatsoever regarding rights or interests in Technology transferred or provided under this agreement and, unless otherwise expressly provided herein, the party transferring or providing such rights or interests disclaims all warranties either express or implied, including warranties of fitness for a particular purpose or of merchantability regarding such Technology and such rights and interests.

(b) GM will defend (or cause a GM Affiliate to defend) any suit or other claim against Delphi or a Delphi Affiliate based on use - by GM, a GM Affiliate or a GM licensee other than Delphi and Delphi Affiliates (but excluding use by the Delphi Business Sector) - of any rights or interests in Technology transferred or provided under this agreement. In any such suit, GM will hold (or cause the Designated GM Affiliate to hold) Delphi or the Delphi Affiliate harmless against any money damages or costs awarded in such suit including reasonable attorney's fees. GM or the GM Affiliate will have full control of the defense of any such action through counsel of its own selection, and may settle any such action at its own expense.

(c) Delphi will defend (or cause a Delphi Affiliate to defend) any suit or other claim against GM or a GM Affiliate based on use - by Delphi, the Delphi Business Sector, a Delphi Affiliate or a Delphi licensee other than GM and GM Affiliates- of any rights or interests in Technology transferred or provided under this agreement. In any such suit, Delphi will hold (or cause the Designated Delphi Affiliate to hold) GM or the GM Affiliate harmless against any money damages or costs awarded in such suit including reasonable attorney's fees. Delphi or the Delphi Affiliate will have full control of the defense of any such action through counsel of its own selection, and may settle any such action at its own expense.

(d) The provisions of this clause 3.2 are intended as general in nature, and are superseded by any applicable provisions of any other prior or subsequent agreement between the parties or their Affiliates - such as, for example, warranty provisions or other terms and conditions of a purchase order or other agreement by which GM purchases products from a Delphi Affiliate.

3.3 Intellectual Property Infringement Indemnity

(a) Unless otherwise specifically provided in a separate written agreement between the parties, and to the extent not otherwise addressed by the Supply Agreement executed herewith between GM and Delphi Automotive Systems LLC, Delphi agrees to defend (or to cause a Delphi Affiliate to defend) any suit or other claim or any threat thereof against GM, GM Affiliates, and GM customers arising out of any actual or alleged direct or contributory infringement of, or

inducement to infringe, any United States or foreign patent, trademark, copyright or mask work right by reason of the manufacture, use or sale of products or services purchased by GM or others from the Delphi Business Sector under agreements, projects, or ventures entered into prior to the Effective Date, including but not limited to those suits and claims listed in schedule M, and including infringement arising out of compliance with specifications furnished by GM or the GM Affiliate, or for actual or alleged misuse or misappropriation of a trade secret resulting directly or indirectly from the Delphi Business Sector's actions. In any such suit, claim, or action, or in response to any threat thereof Delphi agrees to hold (or to cause a Delphi Affiliate to hold) GM, GM Affiliates, and GM customers harmless against any money damages or costs awarded or incurred thereby including reasonable attorney's fees. Delphi or a Delphi Affiliate will have full control of the defense of any such action through counsel of its own selection, and may settle any such action at its own expense. However, GM and GM Affiliates reserve the right, at their sole option and expense, to participate in any such action or any portion thereof, and to conduct its own defense with counsel of its own selection. Such participation in no way alters or reduces the obligations of Delphi and Delphi Affiliates under this paragraph.

(b) Delphi agrees to waive (and to cause Delphi Affiliates to waive) any claim against GM or a GM Affiliate under the Uniform Commercial Code or otherwise, including any hold harmless or similar claim, in any way related to a claim, action, or threat asserted against Delphi or a Delphi Affiliate or GM or a GM Affiliate for patent, trademark, copyright or mask work right infringement or the like by reason of the manufacture, use or sale of products or services purchased from the Delphi Business Sector under agreements, projects, or ventures entered into prior to the Effective Date, including claims arising out of compliance with specifications furnished by GM or a GM Affiliate.

3.4 Protection of Technology

GM will protect (and cause GM Affiliates to protect) documents and other material containing proprietary Common Technology against disclosure to others with the same care GM uses to protect its own documents and other material of a similar nature. However, neither GM nor GM Affiliates will be liable to Delphi or Delphi Affiliates in any manner for any disclosure that may occur, even if such disclosure occurs because of a failure to provide such protection.

Delphi will protect (and cause Delphi Affiliates to protect) documents and other material containing proprietary Common Technology against disclosure to others with the same care Delphi uses to protect its own documents and other material of a similar nature. However, neither Delphi nor Delphi Affiliates will be liable to GM or GM Affiliates in any manner for any disclosure that may occur, even if such disclosure occurs because of a failure to provide such protection.

3.5 Term

This agreement will remain in effect until all rights and obligations have expired.

3.6 Notices

All notices or other communications relating to this agreement must be written, and will be deemed to have been properly given when delivered in person, received by facsimile, or delivered by registered or certified mail as shown by a return receipt. Such notices or other communications must be addressed as follows:

If to GM: General Motors Corporation
Legal Staff
P.O. Box 33114
Detroit MI 48232

Attention: Patent Counsel
Facsimile: 313-974-1374

If to Delphi: Delphi Technologies, Inc.
Legal Staff
P.O. Box 33114
Detroit MI 48232

Attention: Patent Counsel
Facsimile: 313-974-0593

Either party may change its address by notice to the other.

3.7 Disputes

The parties will use all reasonable efforts to resolve any dispute arising from or in connection with this agreement, and to that end will refer any such dispute to the GM and Delphi Automotive Systems Corporation vice presidents responsible for engineering matters. If a dispute is not resolved in that manner, then the dispute resolution provisions of the Master Separation Agreement between GM and Delphi Automotive Systems Corporation will apply.

3.8 Sublicenses

Either party may sublicense its rights under this agreement to the successors to the portions of its business or its Affiliate's business to which such rights relate, provided such sublicense is limited to continuation of such portion of such

business and does not extend to other activities of the successor in interest or to new activities beyond the scope of such portion of such business.

4 - Definitions

"Common Technology" means Technology developed or acquired from others and used, prior to the Effective Date, by both the Delphi Business Sector and one or more other GM business sectors to provide products or services, and in which GM or Saturn has an ownership interest immediately prior to the Effective Date. However, Common Technology does not include any Patent, copyright, or semiconductor chip mask work right licensed under the Intellectual Property License Agreement executed herewith between the parties or any technology identified in this Agreement as (i) subject to restriction under clause 2 and (ii) owned only by GM or only by Delphi.

"Control" of an organization means direct or indirect possession of the power to direct or cause direction of the management of the policies of the organization, whether through the ownership of voting securities, by contract or otherwise. "Controlling" and "Controlled" have the corollary meanings ascribed thereto.

"Delphi Affiliate" means an organization directly or indirectly Controlling, Controlled by, or under common Control with Delphi at any time, but excluding GM and GM Affiliates.

"Delphi Business Sector" means domestic and foreign operations of the Delphi Automotive Systems business sector of GM, and its predecessor organizations. The Delphi Business Sector is the predecessor or Delphi Automotive Systems Corporation and its subsidiaries.

"Delphi Technology" means Technology developed or acquired from third parties prior to the Effective Date by the Delphi Business Sector, and not in the possession of another GM business sector, and in which GM has an ownership interest immediately prior to the Effective Date. However, Delphi Technology does not include any technology subject to restriction under section 2 of this agreement.

"Designated Delphi Affiliate" means a Delphi Affiliate designated by Delphi at any time.

"Designated GM Affiliate" means a GM Affiliate designated by GM at any time.

"Effective Date" means 1 January 1999.

"GM Affiliate" means an organization directly or indirectly Controlled by GM at any time, but excluding Delphi Automotive Systems Corporation and its subsidiaries.

"Patent" means a domestic or foreign patent, utility model or industrial design granted on an invention conceived prior to the Effective Date; an application for a patent, utility model or industrial design on such an invention; the right to apply for a patent, utility model or industrial design on such an invention; and any other intellectual property rights in such an invention.

"Technology" refers to technical information of every kind and nature, including trade secrets and other proprietary and confidential technical information, know-how, methods, practices, procedures, processes, and formulas with respect to the engineering, design, development, manufacture, assembly and servicing of products, and encompassing (but not limited to) the information included in the documents and other materials listed in schedule N.

The parties have signed two copies of this agreement as of the Effective Date.

GENERAL MOTORS CORPORATION	DELPHI TECHNOLOGIES, INC.
By _____	By _____
Name Thomas J. Davis	Name Andrew Brown, Jr.
Title Vice President and Group Executive	Title President

Schedules

A	Vehicle information management relationship
B	Vehicle information management
C	Powertrain algorithms
D	Vehicle control – chassis systems
E	Vehicle control – steering systems
F	Collision avoidance
G	Integrated body
H	Body computer algorithms
I	SIR algorithms
J	Communications between GM and Delphi Business Sector personnel
K	Fuel cell relationship
L	Licensed software tools
M	Infringement suits and claims
N	Engineering documents

Schedule A - Vehicle Information Management Relationship

3/17/97 Statement on Exclusivity and Public Announcements

(2 pages attached)

3/17/97

Statement on Exclusivity and Public Announcements

Delco and Motorola both individually and together desire that their principal relationship with GM ONSTAR be as a supplier and not as a competitor. While Delco and Motorola each possess distinctive skills, technologies and hardware capabilities they together make up a team called " MoDel ". Motorola, Delco and MoDel's objective is to provide hardware to ONSTAR for use in the 1999 Model year for use in GM vehicles using world class competitive technologies. It is not the intention of Motorola, Delco and/or MoDel to compete with the ONSTAR system in the marketplace. Similarly, it is not the intention of ONSTAR to restrict the ability of Delco and Motorola to support existing customers or sell or integrate hardware for inclusion in a Vehicle Communication Platform (VCP) except as provided herein. As such Delco, Motorola and MoDel agree to the following:

– to offer ONSTAR first access and limited exclusivity to new technology solely for the inclusion in the VCP for the ONSTAR system.

– not to jeopardize their customer/supplier relationship with ONSTAR by discussing ONSTAR product roll-out plans with other customers.

– not to engage in any publicity or advertising relating to ONSTAR or their relationship with it without the approval of ONSTAR.

– not to provide ONSTAR type systems for use with VCP type applications either directly or indirectly. ONSTAR type systems refer to either/or call centers or new technologies that are the subject of this agreement.

To facilitate these objectives a Technology Review Committee (TRC) will be formed and will be comprised of senior managers of ONSTAR, Delco and Motorola. The Delco and Motorola members of the TRC will meet with ONSTAR either together as MoDel and/or separately as appropriate no less than once every six months to discuss the business relationship and to present new or new applications of existing technologies (New Technologies) to ONSTAR for possible inclusion in the VCP that will be deemed exclusive. Delco, Motorola and MoDel agree that the following individual will represent their organizations on the TRC:

ONSTAR	Chet Huber
Delco	Michael Burns
Motorola	Dave Melka

Each TRC member will be allowed to bring an appropriate number of support personnel to the Council meetings. The TRC shall consider and be guided by the following:

1. The TRC and/or Delco, Motorola and MoDel will review New Technologies and identify those which are applicable to the VCP. Delco, Motorola and MoDel agree not to withhold New Technologies from ONSTAR that are applicable to the VCP and to offer New Technologies to ONSTAR with sufficient lead time to allow for vehicle validation for an identified target model year introduction.

2. If ONSTAR decides not to adopt any of the New Technologies or does not introduce them in the target model year then they will be deemed to be non-exclusive.

3. Those New Technologies and/ or their unique application to a VCP that are designated for ONSTAR exclusivity will not be sold in a VCP type product for at least 12 months after the targeted introduction date.

4. New Technologies jointly developed by ONSTAR, Delco, Motorola or MoDel will be jointly owned by General Motors, Delco and Motorola. Jointly owned New Technologies will be accorded ONSTAR exclusivity and will not be sold in a VCP type product for at least 24 months after the target introduction date.

5. If ONSTAR decides not to adopt jointly owned New Technologies and/or introduce them in the target model year then they will be deemed to be non-exclusive.

6. Exclusivity for New Technology will end when the TRC concludes that the New Technology is commercially available in the market for VCPs.

Schedule B - Vehicle Information Management

Usage authority definition

- R - identifies the need to get approval from the other party (GM or Delphi) when applying a feature with a third party. Third party will mean either customer or supplier.
- U - unrestricted usage authority with regard to aforementioned third party.

Vehicle Information Management (OnStar) Usage and Ownership

System Description	Delphi U=Unrestricted R=Restricted	GM U=Unrestricted R=Restricted
Airlink	R	R
Tools, Vehicle Simulator	U Owns	R
DSP, IHF	Purchased from third party	
DSP, Vocoder	U Owns	R
DSP, Voice Rec. Tree	R	U Owns
DSP, SVD (Bell 103 Notched)	R Own	R Own
Voice Templates	R	U Owns
POI Download	R	U Owns
RF Switch	R	U Owns
GPS	Purchased from third party	
Tools, Call Center Simulator	U Owns	R
DSP, Memo Record (Segmentation & Partitioning)	R	U Owns
Onboard Black Box Data Format	R	U Owns
Embedded Phone Interface	U Owns	R
OnStar Configured Mobile (OnStar Virtual Network)	R	U Owns

Vehicle Interface	U Owns	U
Remote Diagnostics	U Own	U Own
Call Flows	R	U Owns

General Statements Regarding the Delphi/DE and Onstar Intellectual Properties Agreement

OnStar and Delphi/DE agree that the existing MoDel "Statement on Exclusivity and Public Announcements", dated March 17, 1997 is the guiding principle in our discussion on Intellectual Property convering OnStar products.

GM has ownership of PDD, SSTS and Vehicle Interface Specifications related to OnStar products.

Delphi requires GM approval to utilize knowledge and application of the Class 2 (C2), the Entertainment and Comfort (E&C), and the Universal Asynchronous Receiver Transmitter (UART) buss interfaces for use in any OnStar-like product on GM vehicles.

With regard to those items denoted as "ownership" by Delphi, Delphi will not refuse to license GM.

1. For purposes of this agreement:
   a) VIM (Vehicle Information Management) equals OnStar
   b) Delphi/DE equals Delphi and its Affiliates

2. The business relationship between Delphi/DE and OnStar will be guided by the Statement of Exclusivity and Public Announcements dated 3/17/97. However, the ownership positions and the restrictions listed in "Delphi/DE and OnStar Intellectual Properties Agreement" will continue even after the MoDel agreements have expired.

3. Delphi/DE can sell hardware to other OEMs subject to the terms and conditions of the Statement of Exclusivity and Public Announcements and the "Delphi/DE and OnStar Intellectual Properties Agreement."

4. When possible, Delphi/DE and OnStar should work together to provide systems to other OEMs.

The MoDel agreement is reproduced in schedule A.

Schedule C - Powertrain Algorithms

Usage authority definition

- U = Unrestricted - All Categories
- R = Restricted

Product

- R – Delphi: Delphi can not "sell or disclose" this product to non-GM
- R – GM: GM can not "disclose" to Delphi competition

Tools

- R – Delphi: Delphi can use tool for any OEM but not "disclose" tool logic to non-GM
- R – GM: GM can use tool but not "disclose" to Delphi competition

Powertrain Algorithms Usage and Ownership

System Description	Delphi U=Unrestricted R=Restricted	GM U=Unrestricted R=Restricted
ALGORITHMS DEVELOPED BY GMPT AND USED BY DELPHI		
Algorithms applied in Control or Diagnosis of Powertrain (unless otherwise provided)	R	U Owns
Serial Data Communication J-1979 and J-2190	U	U Owns
DSpace to PCM Link Code	U	U Owns
OBDII S/W	U	U Owns
CVT Control and Diagnostic S/W	R	U Owns
IPC	U	U Owns
Communication Drivers	R	U Owns
Class II Specifications	U Own	U Own
ALGORITHMS DEVELOPED BY DELPHI AND USED BY GMPT		
Algorithms applied in Control or Diagnosis of Powertrain (unless otherwise provided)	U Owns	R
Simulink to dSpace Link Code	U Owns	U
ETC S/W Specifications	U Owns	U
Cruise Control S/W Specification	U Owns	U
Communication Drivers, Math Libraries, Controller Diagnostics, Operating System, which were developed by Delphi	U Owns	R

System Description	Delphi U=Unrestricted R=Restricted	GM U=Unrestricted R=Restricted
DEVELOPMENT TOOL USED BY DELPHI		
Lint/Code Check Tools for S/W Quality	R	U Owns
Simucar Engine Models Access and Support	R	U Owns
Autobob (Automatic Break Outbox)	R	U Owns
Overdrive	R	U Owns
Cal Tools	R	U Owns
DEVELOPMENT TOOL USED BY GMPT		
MDS H/W and Algorithms	U Owns	R

Schedule D - Vehicle Controls - Chassis Systems

Usage authority definition

- 'U' means unrestricted usage authority.
- 'R' means restricted - either a time constraint for NAO exclusivity for a feature, limitation of using a feature on only Delphi-A hardware, or simply identifies the need to get approval from the other party when applying the feature with a third party.

Vehicle Controls Algorithm - Chassis Systems Usage and Ownership

System Description	Delphi U=Unrestricted R=Restricted	GM U=Unrestricted R=Restricted
ABS (Antilock Brake System)		
ABS 3	U Owns	R
ABS 6 - 2wd & 4wd truck	U Own	R[3] Own
ABS - Truck	R	U Owns
Bosch/DDE 5.0	U Owns	R
DBC 7	U Owns	R
Bosch/DDE 5.3	U Owns	R
EH I (Electric Car)	U Own	R[3] Own
DRP (Dynamic Rear Proportioning)		
DRP - Truck	R	U Owns
EH I (Electric Car)	U Owns	R[3]
DBC 7	U Owns	R
Bosch/DDE 5.3	U Owns	R
TCS (Traction Control System)		
TCS 6	U Own	R[3] Own
TCS - Truck	R	U Owns
Bosch/DDE 5.0	U Owns	R
DBC 7	U Owns	R
Bosch/DDE 5.3	U Owns	R

ETS (Enhanced Traction System)		
ABS 6	U Owns	R
DBC 7	U Owns	R
Saturn	R	U Owns
Traxxar (Vehicle Stabiltiy System)		
Bosch/DDE 5.0	U Own	R[3] Own
Bosch/DDE 5.3	U Owns	R
Veh. Stability Enhanc. Sys. - Truck	R	U Owns
Base Brake Control		
EH I (Electric Car)	U Owns	R
Regen Blending	U Own	U Owns
Tire Inflation Monitoring	U Owns	R
Communications		
UART	U Own	U Own
Class II	U Own	U Own
Keyword	U Own	U Own
CAN	U Own	U Own
Misc		
Vehicle Speed Sensing Output	U Owns	U
Rough Road (Misfire Detection)	U Own	U Own
Damping Control		
CCR (Computer Control Ride)	U Owns	R
BSRTD (Bi-State RTD)	U Owns	R
CVRTD (Continuously Variable RTD)	U Owns	R
BSRTDm (Bi-State RTD Monotube)	U Owns	R

Ride Height Control		
2CRL (2 Corner Rear Leveling) [2]	U Owns	R
Integrated Chassis		
Normal Force	U Owns	R
Damper Based Stability Enhancement	U Owns	R
Sensors		
Steer Angle - Single Track Roll Over	U Owns	R
Steer Angle - Analog & Digital Track	U Owns	R[3]
Steer Angle - Dual Track - Analog	U Owns	R
Yaw Rate - Discrete	U Owns	R[3]
Lateral Accelerometer - Discrete	U Owns	R[3]

Notes:
Algorithm Ownership Only, In all cases source code was implemented by Delphi Business Sector
[2] Has been implemented in a non Delphi Controller/System
[3] GM NAO retains the right to use the algorithm on GM vehicles independent of systems supplier

Advanced Development Projects

System Description	Delphi U=Unrestricted R=Restricted	NAO U=Unrestricted R=Restricted
Traxxar (Vehicle Stabiltiy System)		
Sensor Reduction	U Owns	R[3]
Slip Angle Enhancement	U Owns	R
Base Brake		
Delphi Boost Assist (Low Vacuum)	U Owns	R
ACC Braking	U Owns	R

Notes:
This list only includes advanced projects with past NAO involvement

Schedule E - Vehicle Controls --Steering Systems

Usage authority definition

- U = Unrestricted
  The specified organization (Delphi or GM) can use the algorithm without any restrictions. This includes disclosing the algorithm, selling the algorithm, or incorporating the algorithm into other products.
- R = Restricted
  The specified organization (Delphi or GM) can only use the algorithm in conjunction with the other organization. Any disclosure or use of the algorithms outside of the GM / Delphi organizations requires the other organization's consent.

Vehicle Controls Algorithms - Steering Systems Usage and Ownership

System Description	Delphi U=Unrestricted R=Restricted	GM U=Unrestricted R=Restricted
E-Steer System Algorithms		
>System compensation	U Owns	R
>Steering assist	U Owns	R
>Active Damping	U Owns	R
>Active Returnability	U Owns	R
>Vehicle speed dependency	U Owns	R
>Duty cycle enforcement	U Owns	R
>System diagnostics	U Owns	R
E-Steer Actuator Control Algorithms		
>Sine motor control	U Owns	R
>Phase advance	U Owns	R
>Resistance compensation	U Owns	R
>Voltage compensation	U Owns	R
>Trapezoidal motor control	U Owns	R
>Current estimation	U Owns	R
>Controller & Actuator Diagnostics	U Owns	R
E-Steer Generic Algorithms		
>Torque sensor input processing	U	R

	Owns	
>DTW sensor input processing	U	R
	Owns	
>DTW revolution initialization algorithms	U	R
	Owns	
>KW2000 serial communications	U	U
	Owns	Owns
>CAN serial communications	U	U
	Owns	Owns
E-Steer tools		
>E-Tune™	U	R
	Owns	
Quadrasteer System Algorithms*		
>System compensation	U	R
	Owns	
>Rear angle position command	U	R
	Owns	
>Vehicle speed to ratio dependency	U	R
	Owns	
>Thermal management	U	R
	Owns	
>System diagnostic algorithms	U	R
	Owns	
>Rear swing out compensation	U	U
	Owns	Owns
>Static steer operation algorithm	U	U
	Owns	Owns
>Alignment algorithm	U	R
	Owns	
>Mode switch mechanization logic & transition	U	U
	Owns	Owns
>Handwheel position compensation	U	U
	Owns	Owns
>Flight data recorder	R	U
		Owns
>Mode selection & requirement for multiple algorithms.	U	U
	Owns	Owns
Quadrasteer actuator algorithms*		
>Softstart control	U	R
	Owns	
>Key on ramp and mode transition timing	U	U
	Owns	Owns
>Trapezoidal motor control	U	R
	Owns	
Quadrasteer generic algorithms*		
>Front/Rear position sensor acquisition algorithms	U	R
	Owns	

Quadrasteer tools		
>Quadrasteer ratio R&H spreadsheet tool	U Owns	R
>GMTG 4-wheel steer ratio R&H spreedsheet tool	R	U Owns

*Negotiations are under way with GMTG regarding a two year exclusivity agreement for Quadrasteer

System Description	Delphi U=Unrestricted R=Restricted	GM U=Unrestricted R=Restricted
Magnasteer I system algorithms		
>Vehicle speed dependent effort	U Owns	U Owns
Magnasteer II system algorithms		
>Lateral acceleration estimation	U Owns	R
>Lateral acceleration effort compensation	U Owns	R
EVO system algorithms		
>Vehicle speed dependent effort	U Owns	U Owns
>Handwheel velocity (pump catch) compensation	U Owns	U Owns
EH-Steer (Low Voltage)		
①Low Voltage EH-Steer algorithms	U Owns	R
EH-Steer (High Voltage)		
①High Voltage EH-Steer algorithms	U Owns	R

① Does not include work produced by ATV Group on Electric Vehicles, Hybrid Vehicles or other ATV specific projects.

Schedule F - Collision Avoidance

Usage authority definition

- U' means unrestricted usage authority. Algorithm can be used with any third party without notification of the other party.
- 'R' means Restricted - identifies the need to get approval from the other party when applying the algorithm with a third party

System Description	Delphi U=Unrestricted R=Restricted	GM U=Unrestricted R=Restricted
Path Algorithms	U Owns	R
Collision Warning Algorithms	U Owns	R
Threat Assessment (Delphi)	U Owns	R
Adaptive Cruise Control (Delphi)	U Owns	R
Engine Management Interface	U Owns	R
Instrument Cluster Interface	U Owns	R
Brake Booster Interface	U Owns	R
DSP Interface	U Owns	R
CAN Communication	U Owns	R
Diagnostics	U Owns	R
Operating System	U Owns	R
Backup Aid	U Owns	R
Instrument Cluster Interface	U Owns	R
Operating System	U Owns	R
Diagnostics	U Owns	R
Side Detection System	U Owns	R
Instrument Cluster Interface	U Owns	R

Operating System	U Owns	R
Diagnostics	U Owns	R
Adaptive Cruise Control (GM)	R	U Owns
Threat Assessment (GM)	R	U Owns

Schedule G - Integrated Body

Usage authority definition

- U' means unrestricted usage authority. Algorithm can be used with any third party without notification of the other party.
- 'R' means Restricted - identifies the need to get approval from the other party when applying the algorithm with a third party

System Description	Delphi U=Unrestricted R=Restricted	GM U=Unrestricted R=Restricted
Receivers & Peripherals		
Algorithms		
RDS Algorithms	U Owns	R
Random Algorithm	U Owns	R
Theftlock	U Owns	R
DSP Room Simulation Algorithms	U Owns	R
DEFT	U Owns	R
Tools		
WinSpeed - Vehicle Equalization Tool		
CAT Testing		
Air Controls		
Algorithms		
IR Temperature Sensing Algorithm	U Owns	R
HVAC Comfort Algorithms	U Owns	R
After Blow Algorithm	U Owns	U
Tools		
HVAC OOA Based Auto-Code Generator	U Owns	R
Win CIP development tool	U Owns	R
DSS development tool	U Owns	R
Instrument Clusters		
Algorithms		
Compass sensor dynamic compensation methods	U Owns	R
Air core gage Drive, smoothing, and alignment	U Owns	R

Stepper motor Drive, smoothing, and alignment	U Owns	R
RTT temperature compensation	U Owns	R
RCG family software design	U Owns	R
Odometer storage and access security	U Owns	R
Fuel level detection and self calibration methods	U Owns	R

Schedule H - Body Computer Algorithms

Usage authority definition

- U' means unrestricted usage authority. Algorithm can be used with any third party without notification of the other party.
- 'R' means Restricted - identifies the need to get approval from the other party when applying the algorithm with a third party

System Description	Delphi U=Unrestricted R=Restricted	GM U=Unrestricted R=Restricted
Security Rolling Code Algorithm	U Owns	R
Class 2 communications specs	U	U Owns
Class 2 communications drivers	U	R Owns
Door lock switches	R	U Owns
Light switches	R	U Owns
DRL	R	U Owns
Theater lighting	R	U Owns
RF receiver for key fob	R	U Owns
RF receiver communcation algorithms	R	U Owns
Diagnostics for I/O (shorts & grounds)	R	U Owns
Telltale functions based on diagnostic info	R	U Owns
Hatch unlock	R	U Owns
Delayed accessory bus power	R	U Owns
Fuel gage controls (small car)	R	U Owns
Odometer (small car)	R	U Owns

Schedule I - SIR Algorithms

Usage authority definition

- U' means unrestricted usage authority. Algorithm can be used with any third party without notification of the other party.
- 'R' means Restricted - identifies the need to get approval from the other party when applying the algorithm with a third party

System Description	Delphi U=Unrestricted R=Restricted	GM U=Unrestricted R=Restricted
VBC/SDMA	U Owns	R
EVBC/SDMA,S,E,B	U Owns	R
E2VBC/SDMR(S,SD)	U* Owns	R
ALGO-S/SDMG	U Owns	R
ALGO-S-SeveGreenity/SDM-Delta	U Owns	R
ALGO-E/SDM-Epsilon	U Owns	R
ESS/SDM-GT,Delta,Epsilon	U Owns	R
DASI/SISM	U Owns	R
DANA/SISM,SIS	U Owns	R
Rollover/Rollover	U Owns	R
Bladder/PODS	U Owns	R
Flexpoint/PODS	U Owns	R
Frame Based/PODS	U Owns	R
OPRS/OPRS	U Owns	R

Schedule J – Communications between GM and Delphi Business Sector Personnel

(21 pages attached)

A— A

DELPHI
Energy & Engine Management Systems

memo

Date: December 12, 1997

To: John Givens, C. Houllion

From: Richard Johnson

Subject: Serial Communication

cc: T. Binasio, P. Cumbo

This memo is to document the meeting held December 10, 1997, at 1:00 PM in the office of John Givens; attended by John Givens, Curtis Houllion, and Richard Johnson. Key outcomes of the meeting are listed below:

- GMPT is open to the concept proposed in R. Johnson's memo dated November 25, 1997, (see attached) but needs additional time to review details. Further conversations will take place in 1998 with the goal of reaching a serial communication specification sharing agreement, where DE/Delphi would transfer budget for access to the GMPT specifications.

- In December 1997, DE/Delphi will transfer a budget amount of $30,000 to GMPT for use of J-1979 and J-2190, Version 015 for customer programs. This is a one time event and any future sharing will be negotiated as outlined in the above bullet.

Sincerely,

Richard Johnson
Staff Engineer, Forward Systems

RJJ: dln

attachment (1)

ab121297.doc

DELPHI
Energy & Engine Management Systems

memo

Date: November 25, 1997

To: John Givens

From: Richard Johnson

Subject: Serial Communication

cc: P. Cumbo, C. Houllion

The following is my proposed compensation to GMPT from DE/Delphi EMS for use and updates to the serial communication specifications. These specifications would cover Class II, Keyword-2000, and CAN. They would be made available to DE/Delphi EMS on an as is, when available basis (no additional work required).

The following documents the rational of my proposal. The Taylor/Duex/Cumbo agreement gave DE/Delphi access to the latest specification as of December 31, 1996. The proposal is to cost share the cost of updating or modifying specifications. My intent is to estimate this cost sharing on a 5 year basis and do a budget transfer in 1997 to cover the 5 year costs.

1997	.3	(100K/Man Year)	$30,000
1998	.3		$30,000
1999	.3		$30,000
2000	.3		$30,000
2001	.3		$30,000
			$150,000

I will work with your secretary to set up a meeting in early December to review this proposal. Please do not hesitate to seek additional clarification of this proposal.

Richard Johnson

RJJ: dln
aa112597.doc

DELPHI
Energy & Engine Management Systems

memo

Date: November 7, 1997

To: Richard Taylor, John Givens

From: Richard Johnson

Subject: ECM Off-Board Serial Communication

cc: Pete Cumbo, Curtis Houllion

DE/Delphi-E Engine Management Systems has long used GM Corporate Class II specification documents (listed below) for customer systems. Use of these documents has obviously relieved DE/Delphi-E from doing redundant work and has made these documents more universal standards. DE/Delphi-E would like to gain GMPT's concurrence to continue this practice and establish a process by which DE/Delphi-E would receive specification updates.

- **J-1979 Modes 1 - 9 Message Description (CARB Required Modes)**
  General Motors Powertrain Group
  J1979 / J2190 Class 2 Communications Interface Specification
  Version 016
  Dan Grenn
  Bob VanBommel
  Powertrain Control Center

- **J-2190 Modes $10 - $AE Message Description (Enhanced Modes)**
  General Motors Powertrain Group
  J1979 / J2190 Class 2 Communications Interface Specification
  Version 016
  Dan Grenn
  Bob VanBommel
  Powertrain Control Center

  OR

  General Motors
  Class 2 Physical Message
  Diagnostic Strategy
  Specification
  Version 1.12
  Rob Hoover
  Class 2 Diagnostic Work Group
  Service Technology Group

- **Control of Off-Board Devices (Mode $AE Control Specification)**
  General Motors Powertrain Group
  Subsystem Technical Specification for
  Class-II Device Control Interface to PCM from Off-Board Devices
  TL.17.5001.R05
  Revision 05
  Bob VanBommel
  Powertrain Control Center

- **Class-2 Functional Message Operation (ABS, IPC, TCM, etc.)**
  NAO Corporate
  Class 2 Functional Communication Specification
  Version 1.2
  Class 2 Message Strategy Group
  STG ???

- **Class 2 Message Handler (Specification / Description)**

  General Motors
  Corporate Standard Class 2
  Message Handler
  Revision 2.1b
  Author-Unknown

  Support Documents for above:

  Class 2 Application Reference Model
  Users Guide
  Version 1.0a
  Author-Unknown

  Class 2 Application Reference Model
  Software Specification
  Version 1.0b
  Author-Unknown

In addition to Class II, GMPT will be developing and implementing specifications for other serial communication protocols; namely Keyword-2000 and CAN. DE/Delphi-E also desires a similar arrangement as requested for Class II for use of Keyword-2000 and CAN on customer programs and to receive specification updates.

Sincerely,

Richard Johnson

RJJ: dln
aa110797.doc

FILE — INTELLECTUAL PROPERTY

Agreement for Commercialization of OBD-II Software Technology
GM Powertrain Group / Delphi-E and Delco Electronics

Purpose:

- To facilitate the effective commercialization of Engine Management Systems by Delphi Automotive Systems Group (Delphi-E and Delco Electronics).
- To provide an appropriate level of compensation to GM Powertrain Group, Powertrain Control Center, for the developments they have created and managed.

Agreement:

- Delphi-E/ DE would provide GMPTG/PCC fees based upon the following schedule, as a mechanism to Delphi-E/ DE for full rights of use and disclosure of existing OBD-II technology.
  - OBD-II technology includes algorithm descriptions, software requirements, calibration guides, validation information, software application tools, and any other engineering process or product documentation.

- Fee schedule:
  - $ 500,000 in 1996.
  - $ 250,000 by March 1, 1997, for updates through December, 1996.

- The sum of all fees paid through this Agreement would constitute a paid-up license to all parties for any knowledge exchanged. This would permit Delphi-E/ DE to base their systems on the knowledge exchanged, but end any enhancements from GMPTG, as of December 31, 1996.

- This Agreement shall not preclude future technical cooperation by mutual agreement of these parties, on a project by project basis.

Approvals:

Richard B. Taylor	Thomas J. Duex	Peter C. Cumbo
Technical Director GMPTG	Dir Powertrain Customer Team	Customer Director for GMPTG
Powertrain Control Center	Delco Electronics	Delphi Automotive Systems

PCC 16-Jan-97

To: Tom Brasio
cc: John Waller
Ed Martin
Richard Johnson
Jeff Kang
Pete Cumbo

GM POWERTRAIN

Date: December 3, 1997

To: Rich Taylor

From: Kevin Cullen

Subject: Exchange of dSPACE Development Software

The attached memo from Scott Furry and Jim Waters of Delphi proposes an exchange of dSPACE software between Delphi and PCC that will enhance both our and their current capabilities. It will also make Delphi better able independently to support their outside customers. I previously reviewed the matter with you and you agreed that we should proceed with the exchange. This memo serves to document the agreement and effect the exchange.

Kevin Cullen
Manager, Advanced Controls
Powertrain Control Center

cc: Dave Dempsey
Scott Furry 483-342-101
Jim Waters 483-342-101

DELPHI
Energy & Engine Management Systems

DELCO ELECTRONICS

To: Kevin Cullen, David Dempsey
GMPTG / PCC

From: Scott Furry, James Waters
Delphi-E / EMS

Date: 16-OCT-97

Subject: Summary of agreement to exchange dSPACE rapid algorithm development software.

The purpose of this memo is to summarize the agreement reached during the October 15th meeting. The agreement covers the exchange of custom software used in the Rapid Algorithm Development (RAD) environment based on tools from dSPACE, GmbH and The MathWorks, Inc. The purpose of the agreement is to give both parties unrestricted ownership of the exchanged software so that each can pursue business with outside customers using the RAD tools. The details of this agreement are:

1. Delphi-E shall receive all software that provides communication between the dSPACE AutoBox and the target controller (68332 or 68HC11). This includes all source code, executables, assemblers, batch files and any other support software required to generate, compile, and download the communication software to the AutoBox dual-port RAM. Delphi-E shall also receive any available documentation and training (not to exceed 3 days) from GMPTG to understand how the above software functions.

2. GMPTG shall receive all software that integrates the above communication software with the automatic code generation process provided by The MathWorks SIMULINK and Real-Time Workshop. This includes all source code, "Make" files, and MATLAB M-files required for integration. GMPTG shall also receive any available documentation and training (not to exceed 3 days) from Delphi-E to understand how the integration process functions.

This agreement does not exclude the possibility of future work between GMPTG and Delphi-E on RAD tools.

J. Scott Furry 16-OCT-97

James Waters 10/16/97

MC: 483-342-101, General Motors Proving Ground,
3300 General Motors Road, Milford, MI 48380-3726

GM POWERTRAIN

To: Current Delphi members of Diagnostic COE/NAO OBDII Interface Committee

From: Mario Maiorana Jr. - NAO OBD II Interface Committee Chairman
John Van Gilder - Diagnostic COE Chairman

Subject: Diagnostic COE/NAO OBD II Interface Meeting Distribution Changes

Date: January 10, 1997

This memo is to notify you that given the current state of business between GM Powertrain and Delphi E, we are removing all Delphi-E employees from the regular Diagnostic COE/NAO OBD II Interface distribution. Attached is a memo that describes in more detail the changes in the Powertrain - Delphi E relationship that have precipitated this action.

We appreciate the expertise Delphi has provided at these meeting and will continue to invite specific representatives from Delphi to attend occasional meetings on an as needed basis.

Mario Maiorana
NAO OBD II Interface Committee Chairman
Powertrain Control Center
8-341-5121

John Van Gilder
Diagnostic COE Chairman
Powertrain Control Center
8-341-5845

THE RICH TAYLOR LETTER

GM POWERTRAIN

Date: January 8, 1997

To: PCC staff
CSC

Subject: Delphi-E relationship

During the last several years, our relationship with Delphi-E has evolved from a close interdependent partnership to an arms-length commercially-dominated association. This has been underscored by our recent decision to terminate certain cooperative activities relative to OBDII and other controls technologies.

With this change, it is no longer appropriate to include Delphi-E in GMPTG technical forums such as COE or work group activities, or to provide them with advice or technical support in areas where a specific agreement to cooperate does not exist.

This is not to suggest that we will not continue to communicate actively with Delphi-E as a major supplier, concerning program implementation or technical direction. We should also continue to rely on Delphi-E for technical support as expected from any key supplier, and their participation in our activities when to our benefit, and at our request, should continue.

This change also does not preclude technical cooperation by mutual agreement. Any agreement to cooperate should include the following considerations:

1. There should be comparable contribution by each party.

2. The project should not result in unacceptable interdependence or business encumbrance for either party.

GM Powertrain Group, General Motors Corporation
General Motors Proving Ground, Building 31-E PCC
M/C 483-331-500
Milford, MI 48380-3726

Phone (810) 685-6438 GM 8-341-6438
FAX (810) 685-6374 GM 8-341-6374
VME 81001-54100

3. The area of cooperation should be defined and should not require discussion of sensitive technical information outside the direct area of the project.

4. In general, projects involving expectations of non-disclosure should not be pursued.

5. The agreement should be documented and reviewed by management. The agreement need not be formal, but should address objectives, deliverables, schedule, contributions, and application/disclosure expectations.

If you have any questions regarding this direction, please contact me at 8-341-6438 (VME 81001-54100)

Rich Taylor
Technical Director
Powertrain Control Center

cc: Ned McClurg
Tom Endres
Peter Cumbo
Tom Duex

RBT00001.DOC/CM

Date: May 28, 1993

Subject: GM Powertrain/AC Rochester Agreement to exchange software intellectual property on Electronic Throttle Control (ETC) and Integrated Powertrain Control (IPC)

In exchange for providing to GMPT the ETC algorithms that ACR has developed over the past seven (7) years, ACR is given the right to use IPC algorithms to be developed by GMPT in the future. The following conditions apply:

- ACR may use these IPC algorithms in its Worldwide Engine Management System business with non-GM/NAO customers provided that these algorithms are implemented as an embedded part of a system and are not specifically disclosed to the customer.
- Use of these algorithms requires prior agreement from GMPT for any algorithms not jointly developed by GMPT and ACR. Approval for ACR use will only be withheld in the following two cases:
  - A non-disclosure agreement exists between GMPT and a third party co-developer.
  - If, in the future, a NAO strategic decision (that must be confirmed by the NAO Strategy Board) is made that identifies the subject algorithms as technologies that are to be held in NAO as a GM strategic competitive advantage.

This agreement must be reviewed if the legal relationship of ACR or GMPT to General Motors should change.

D. L. Christeller
For AC Rochester

R. B. Taylor
For GM Powertrain

DATE: MAY 27, 1993

SUBJECT: POWERTRAIN'S REQUIREMENTS FOR 1997 1/2 ELECTRONIC THROTTLE CONTROL

TO: R. SIMS
ACR, FLINT MI.

THIS LETTER IS TO CONFIRM OUR CONVERSATIONS OF THE PAST SEVERAL WEEKS ON THE "PARTITIONING" OF THE ETC ACTIVITY AND GM POWERTRAIN'S SPECIFIC ALGORITHM NEEDS. THERE IS GENERAL AGREEMENT AT BOTH POWERTRAIN AND ACR THAT THE ETC ACTIVITY SHOULD BE SEPARATED INTO THREE SPECIFIC AREAS:

GLOBAL SOURCING / ADVANCED PURCHASING - THIS ACTIVITY IS FOCUSED ON DEVELOPING THE REQUIREMENTS FOR THE ETC SUBSYSTEM AT THE SUBSYSTEM LEVEL. IT IS EXPECTED THAT POWERTRAIN AND ACR WILL JOINTLY DEVELOP THIS REQUIREMENTS DOCUMENT AND THAT NO "GM CONFIDENTIAL" INFORMATION SPECIFIC TO THE ACR ARCHITECTURE WILL BE INCLUDED IN THIS DOCUMENT WITHOUT ACR'S SPECIFIC APPROVAL.

ETC "CORE" DEVELOPMENT - THIS ACTIVITY IS FOCUSED ON COMPLETING THE DEVELOPMENT AND VALIDATION OF THE ETC "CORE" FOR THE SUBSYSTEM ARCHITECTURE DEVELOPED BY ACR. THIS ACTIVITY IS BEING DONE JOINTLY BY POWERTRAIN (PCC AND VARIOUS PRODUCT TEAMS) AND ACR.

APPLICATION SPECIFIC UTILIZATIONS OF ETC - THIS ACTIVITY IS FOCUSED ON DEVELOPING VARIOUS CONTROL SCHEMES THAT TAKE ADVANTAGE OF ETC. MANY CONTROL SCHEMES HAVE BEEN DEVELOPED BY THE ACR ETC TEAM AND THE WARREN PRODUCT TEAM IS CURRENTLY EVALUATING THESE SCHEMES AND THEIR ASSOCIATED ALGORITHMS FOR USE IN THE 1997 1/2 CORVETTE PROGRAM. POWERTRAIN RECOGNIZES THAT THESE ALGORITHMS ARE GM CONFIDENTIAL AND NOT TO BE DISCLOSED OUTSIDE GM.

WITH THIS PARTITIONING IN MIND, THE AGREEMENT TO HAVE A JOINT DEVELOPMENT ACTIVITY BETWEEN ACR AND POWERTRAIN FOR THE 1997 1/2 CORVETTE CARIES SOME RISK THAT PROPRIETARY (GM CONFIDENTIAL) ALGORITHMS DEVELOPED BY ACR WOULD BE DISCLOSED OUTSIDE THE CORPORATION DURING THE SOURCING AND DEVELOPMENT PROCESS.

POWERTRAIN RECOGNIZES THESE RISKS AND AGREES TO ABIDE BY ACR'S REQUEST THAT ALL ALGORITHMS SUPPLIED BY THE ETC DEVELOPMENT TEAM BE TREATED AS " GM CONFIDENTIAL" IN ORDER TO ALLOW THE 1997 1/2 WARREN PROGRAM TO PROCEED ON SCHEDULE.

THE REQUIREMENTS OF THIS AGREEMENT ON POWERTRAIN AND ACR ARE AS FOLLOWS:

POWERTRAIN - COMMITS TO RESPECT THE GM CONFIDENTIAL STATUS OF ALGORITHMS PROVIDED BY THE ETC DEVELOPMENT TEAM AND NOT DISCLOSE THOSE ALGORITHMS OUTSIDE GM WITHOUT PRIOR AGREEMENT FROM ACR.

ACR - COMMITS TO PROVIDE ALGORITHM REQUIREMENTS (MARKED GM CONFIDENTIAL) RELATED TO "APPLICATION" SPECIFIC USAGE OF ETC TO THE WARREN PRODUCT TEAM PER THE PUBLISHED ALGORITHM DEFINITION DATES. (ATTACHED)

ANY QUESTIONS OR COMMENTS PLEASE CONTACT ME

R A Marsh

R. A. MARSH
SYSTEM ARCHITECTURE STL

ETC28MAY.DOC

MEMORANDUM OF UNDERSTANDING

This memorandum summarizes the agreement reached by Delphi Energy & Engine Management (Delphi-E), GM Powertrain (Powertrain) and the Electrical and Electronics Department of the GM R&D Center (EE Department) to develop a sensor to measure oil quality (OILPROBE). Delphi-E and Powertrain desire the cooperation of the EE Department, to develop the sensor and related algorithms to measure oil quality for OILPROBE. The EE Department agrees to participate in this development. Accordingly, the following terms and conditions will constitute our agreement on this subject:

1. Delphi-E will contribute one hundred thousand ($100,000) to the budget of the EE Department to support algorithm development in 1996.

2. The algorithms and all other information that is developed through this activity will be made available, without restriction, to Delphi-E, Powertrain, and the GM R&D Center. In particular, the parties hereto agree to share all information including, but not limited to:

   a) developments in electronic circuitry and fabrication techniques developed by Delphi-E,

   b) testing results developed by Powertrain,

   c) developments in algorithms

3. The work of R&D Center's Fuels and Lubricants Department and work performed by the GM R&D Center or Powertrain relating to extended oil intervals are explicitly excluded from this Agreement.

4. Delphi, Powertrain and The EE Department agree to support this activity with adequate resources to ensure its timely completion.

5. This Project shall be deemed completed when Powertrain has complete information on how the sensor and its circuits are made in sufficient detail so that it may be sourced through World Wide Purchasing and Delphi has sufficient knowledge of the algorithms to enable it to manufacture a sensor for sale.

6. The parties hereto agree that participation in this project does not constitute any agreement, either expressed or implied, relating to future sales or purchases of OILPROBE sensors.

If the foregoing is satisfactory to you, please have this agreement executed on behalf of your organization by an authorized representative.

GM NAO R&D Center
Electrical & Electronics Department

By: [signature]
Title: Dept Head
Date: 3/12/96

Powertrain

By: [signature]
Title: TECH DIRECTOR - PCC
Date: 15MR96

Delphi-E

By: [signature]
Title: Tech. Ctr. Dir., Sensors
Date: 3/20/96

Powertrain

By: [signature]
Title: TECH. DR. - MATLS ENGRG
Date: 3/15/96

** TOTAL PAGE.03 **

ATTACHMENT H

Simucar

GMPT & Delco Sponsorship

•1991-1997, Simucar Hardware & Software Development Sponsored by:

– GMPT	$3.6M
– Truck	$0.5M
– Mid-Lux	$0.6M
– GM Central	$2.9M
– DE	$0

•DE Contact:	Mike Creer	8-341-3847
•GM Contact:	Prakash Shrivastava	8-226-2206
•EDS Contact:	Bob Falberg	8-366-9188

Attachment I

Autobob

GMPT & Delco Sponsorship

- 1991-1997, Autobob Hardware Development Sponsored by:
  - GM Central $100K
  - DE $0

•DE Contact:	Mike Creer	8-341-3847
•GM Contact:	Prakash Shrivastava	8-226-2206
•EDS Contact:	Bob Falberg	8-366-9188

Attachment 5

MDS

GMPT & Delco Sponsorship

- 98R1 Software co-developed between GMPT and Delco. (GMPT/DE = 60/40) *
- Powertrain investment estimated ~$2.5M*

• DE Contacts:	Bob Hoffman	8-322-4199 *
	Mike Horton	8-293-3218
• GMPT Contact:	John Givens	8-341-3742

ATTACHMENT K

Delphi Automotive Systems

From: Ron W Cox/DELCO
Date: 06/24/98 11:19:51 AM
Subject: Delphi-D Intellectual Property

I am assisting Tom Binasio in identifying any intellectual property deals that may have been made recently with regard to the ownership of software. Specifically we need to know by 5:00 PM today (Wed. 6/24/98), any deals made to exchange or to purchase intellectual property from GM-NAO.

I am currently checking on the history of the CAN and Key-Word 2000 (KW 2000) communications software modules.
The CAN software was first developed by our Software Reuse group led by David Gray. The first use of the CAN software driver developed was for GMPT-Lansing Line Engine PCMs as part of our commitment to supply the Hardware IO software. The KW 2000 software was first developed by our software group in Luxembourg led by Roland Millen for Opel applications. The KW 2000 software was then used on GMPT-Lansing Line Engine PCMs as part of our commitment to supply the Hardware IO software. These **modules were not part of the software that we were contracted to provide when GMPT decided not to provide the application software for MY 2000-2002 Line Engine programs.** Other uses of CAN and KW 2000 software other than GMPT-Lansing applications include the Isuzu 2000 V6, CVT, and Daewoo MR 140 programs. If this history is incorrect in any way, please contact me at once.

Ron Cox

To:
George A Duncan/DELCO@DELCO
Norm Swanson/DELCO@DELCO
Debra E Poppas/DELCO@DELCO
Thomas J Puza/DELCO@DELCO

cc:
Mike Forehand/DELCO@DELCO
Dave L Mannfeld/DELCO@DELCO
Majid Lodhi/DELCO@DELCO
Charles M Grimm/DELCO@DELCO
Jerzy A Kowalczuk/DELCO@DELCO
Evangeline Bletsis/DELCO@DELCO
Tuhin Ray/DELCO@DELCO
Andrew H Voss/JP/DELCO@DELCO
Steven M Stewart/DELCO@DELCO
Roland Millen/DE/DELCO@EDSDELPHILUX
Harry L Husted/SG/DELCO@DELCO
Sandip Sarkar/SG/DELCO@DELCO
Curtis P Houllion/DELCO@US_GM_TRY_DWH01
James M Caddell/DELCO@DELCO
Mike S Campbell/DELCO@DELCO
Tom Binasio/DELCO@DELCO
William R Stewart/DELCO@DELCO

Category:

Tom Binasio
Lansing Plant
ATTACHMENT K

Delphi Automotive Systems

From: Ron W Cox/DELCO
Date: 06/26/98 07:25:40 AM
Subject: Delphi-D Intellectual Property

FYI...

---------- Forwarded by Ron W Cox/DELCO on 06/26/98 07:26 AM ----------

DELPHI Automotive Systems

Thomas J Puza

06/25/98 02:20:30 PM

cc: Ron W Cox
Subject: Delphi-D Intellectual Property

Mike,

Any issues with the statements on the Lansing program?

Dennis and Joseph,

Do we have any other deals to exchange intellectual property from GM-NAO? If so, please outline specifically.

Ron,

Separately we've agreed to give copies of vehicle application source code to GMTG and EMS application source code to Isuzu. All framework and other code we've attempted to keep separate. There are requests from GMTG to give them the EMS application source code also. We have told Isuzu we cannot do that until we have a letter of authorization from Isuzu specifically allowing us to do this. I believe that these letters are (or have) been written.

Tom

---------- Forwarded by Thomas J Puza/DELCO on 06/25/98 02:15 PM ----------

DELPHI Automotive Systems

Ron W Cox

06/24/98 11:19:51 AM

To: Thomas J Puza
Subject: Delphi-D Intellectual Property

Delphi DE Confidential

I am assisting Tom Binasio in identifying any intellectual property deals that may have been made recently with regard to the ownership of software. Specifically we need to know by 5:00 PM today (Wed. 6/24/98), any deals made to exchange or to purchase intellectual property from GM-NAO.

I am currently checking on the history of the CAN and Key-Word 2000 (KW 2000) communications software modules.
The CAN software was first developed by our Software Reuse group led by David Gray. The first use of the CAN software driver developed was for GMPT-Lansing Line Engine PCMs as part of our commitment to supply the Hardware IO software. The KW 2000 software was first developed by our software group in Luxembourg led by Roland Millen for Opel applications. The KW 2000 software was then used on GMPT-Lansing Line Engine PCMs as part of our commitment to supply the Hardware IO software. **These modules were not part of the software that we were contracted to provide when GMPT decided not to provide the application software for MY 2000-2002 Line Engine programs.** Other uses of CAN and KW 2000 software other than GMPT-Lansing applications include the Isuzu 2000 V6, CVT, and Daewoo MR 140 programs. If this history is incorrect in any way, please contact me at once.

Ron Cox

To:
Tom Binasio/DELCO@DELCO

cc:

Category:

DELPHI
Energy & Engine Management Systems

memo

Date: November 11, 1996

To: Lauren Bowler

From: Linda Dinger

Subject: O2S Thermal Model for Use by GMPTG Premium V Product Team

c: D. Maschoff, S. Mahan, P. Peterson, A. Verma

Delphi-E's Exhaust Oxygen Sensor Thermal Model provides a temperature map of the complete sensor based on exhaust gas temperature, heater power and boundary conditions from the exhaust gas and the outside environment. The model includes temperature dependent material properties (some of which are proprietary to Delphi-E), and heat exchange between the surfaces of all the internal components of the sensor. At this time Delphi-E has invested over $60K to define and enhance this model as a useful engineering tool.

At the request of GMPTG Premium V Product Team, Delphi-E will make a copy of this model available to them for their use only. The model and any variations of the model or results of using the model will not be disclosed to third parties without the express written permission of the Delphi-E Chief Engineer, Exhaust Engineering. Premium V personnel have agreed to share with us any additions/modifications to the model and inform us of any findings based on exercising the model that could impact our sensor design.

The model will be delivered on a floppy, tape or via Lotus Notes by 15NO96.

LM Dinger

Linda M. Dinger
Chief Engineer
Exhaust Subsystems Engineering

agreed: Samuel R Wright Date: 11/12/96
Samuel R. Winegarden
Chief Engineer, Premium V Product Team
GM Powertrain Group

Schedule K – Fuel Cell Relationship

8/6/98 Global Fuel Cell Research, Development and Commercialization Program

and

November 5, 1998 letter relating to Fuel Cell Agreement

(6 pages attached)

General Motors Corporation

Arbitrated by H. J. Pearce

GLOBAL FUEL CELL RESEARCH, DEVELOPMENT AND COMMERCIALIZATION PROGRAM

This Program Agreement is between General Motors Corporation (GM), represented by its Global Alternative Propulsion Center (GAPC) under the umbrella of General Motors Global Research and Development and Delphi (DELPHI), an independent company.

The Purpose of the Program is the research and development activity necessary to place a GM manufactured vehicle in commerce which is powered by a Fuel Cell Propulsion System.

Section 0 - Preamble

This Agreement defines the rights and relationships that assure the following Goals:

- GM ownership and control of the Fuel Cell Propulsion System and related technologies.
- GM control of the commercialization of the Fuel Cell Propulsion System and related technologies.
- GM control of non-GM enablement in the Fuel Cell Propulsion System and related technologies.
- Maximized return for all developing parties while controlling commercialization of the Fuel Cell Propulsion System and recognizing that GM must be able to offer the most competitive product.
- Maximized application of Worldwide Purchasing to the extent consistent with GM control of key technology, the desire to minimize enablement of non-GM parties and good business sense.

Section 1 - Definitions

The following terms have the following meanings:

- Fuel Cell Propulsion System - a Fuel Cell Subsystem and Electric Drive System.
- Fuel Cell Subsystem - a fuel processor, stack, ancillary components, sensors and controls.
- Electric Drive System - a drive motor and power electronics.
- Enablement - the transfer of Technical Information outside of GM which is sufficient to allow a party to develop or manufacture a key component of the Fuel Cell Propulsion System.
- Global Alternative Propulsion Center - an organization under the GM Global Research and Development umbrella, having the organizational structure included as Attachment A.

Section 2 - Implementation

The Program will be performed by the GAPC.

- All research, development and commercialization activities, and related expenses, have been transferred to GAPC.
- Initially, two Co-Directors will be responsible for the implementation of the Program. The Co-Directors report to Peter Hanenberger, Executive Vice President, GMIO and Chairperson, GM Vehicle Technology Strategy Board.
- Delphi will be represented on the Steering Committee, with the intent to facilitate cooperation between the Units, until such time that Delphi is no longer partially owned by GM. Thereafter, Delphi will be requested to serve in an advisory role consistent with its development partner status.

- GAPC includes Program specific administrative support functions to assure continuity and consistency across the Program and to maximize the effectiveness of Program efforts.
  -Functions include:
  a) Program Management
  b) Worldwide Purchasing
  c) Finance
  d) Legal - Commercial
  e) Legal - Intellectual Property
  f) Marketing and Planning
  g) Administration/Personnel

- Recognizing that Delphi supported an active Fuel Cell Subsystem development program in Rochester, NY, it is the intent to utilize the Fuel Cell Resources (people and facilities) of this prior program so as not to disrupt activities underway. These Delphi Fuel Cell Resources were transferred, effective November 1, 1997, to GAPC and are under the direct management of the two Program Co-Directors. The Fuel Cell Resources (people and facilities) are, and shall remain, the property of GM.
- The GAPC, based on discussions with the Steering Committee and the VTSB, shall define those components/systems for which the Worldwide Purchasing process shall apply.
- GM recognizes that Delphi may require technical resources and support from GM to competitively manufacture components, and GM agrees to work with Delphi as a development supplier in this regard.

Section 3 - Funding Commitment

3.1 The Program will be 100% funded by GM.

3.2 Given Delphi's contribution, Delphi will receive a minimum of 25% of the volume for specific components they want to and are able to manufacture for the first two major vehicle programs (charter life cycle volumes minimum 100,000) if Delphi is able to meet quality, service and price of the competitively benchmarked components in question. For those components where the WWP process as not utilized and Delphi is the sole source, Delphi shall be required to meet mutually agreed to benchmarked QSP targets 3.5. It is the intent of the GM President's Council (GMPC) that Delphi will receive an equitable return for its investment in the Program. Such return:

- Will be determined by the GMPC
- Will recognize the goals set forth in this Policy Statement
- May take into account GM's actual commercialization strategy.
- May take into account the actual contribution by Delphi towards the realization of the Program Purpose.

3.3 Recognizing from an internal, organizational perspective, that Delphi's prior support has led to existing technology and expertise which will accelerate the overall development of the Program, and recognizing that Delphi has transferred all Fuel Cell Resources to GAPC, Delphi will receive no rebill from GM of the GAPC's expense.

i) As a development supplier to GM, Delphi may be obligated to participate fully in the development of the components which they will supply and to participate fully in early, non-major vehicle programs. Such participation is recognized as necessary so Delphi can develop its current core component product competencies around the component needs of GM's Fuel Cell Propulsion System.

AW 8/11

Section 4 - Technology Portfolio

4.1 For the purposes of this Agreement, the Technology Portfolio will consist of, but not be limited to:

- Patents and Patent Applications.
- Trade Secrets.
- Technical Information (Know-how).
- Copyrights (Software).

4.2 For the purposes of this Agreement, the GM Technology Portfolio will include the following:

- GAPC Program generated technology.
- Background technology (pre-Program technology).
- Third Party technology.
  -co-developed with GM.
- All GAPC personnel

4.3 The GM Technology Portfolio will be owned by the GMPC

4.4 For the purposes of this Agreement, the Delphi Technology Portfolio will include the following:

- Delphi generated technology which Delphi, as a supplier to GM, develops in support of GAPC from the date of this agreement going forward.
- License to GAPC Technology Portfolio which is limited to that required to work the Delphi generated technology.
- Delphi has the right to engage in any new Independent Research, Development or Supply Projects alone, or with non-GM parties and the technology developed in such programs is included in the Delphi Technology Portfolio defined in this Section.
- All Delphi personnel

4.5 The Delphi Technology Portfolio will be owned by Delphi.

4.6 GMPC ownership of the GM Technology Portfolio and Delphi ownership of the Delphi Technology Portfolio will include the control of:

- The permitted "use" of technology from the respective Technology Portfolios, including:
  -Licensing of technology.
  -Contractual relationships with non-GM or non-Delphi parties:
    -joint engineering projects and ventures.
    -joint marketing projects and ventures.
    -sourcing of components.
    -sales of manufactured components.

4.7 GM fully understands that Delphi wants to be a major manufacturer of fuel cell subsystems to GM and other OEMs. Any commercialization of the GM Technology Portfolio by Delphi for non-GM parties must first be approved by GMPC and will be subject to a royalty fee which:

- Will be shared within GM based on the pro rata funding allocation.
- Will, as determined by the GMPC, be paid in the form of either a running royalty or a fixed, up front charge of equivalent economic value.

AW 8/5

Section 5 - Miscellaneous

5.1 Independent Research

(A) Delphi retains the right to engage in any new Independent Research and Development Projects alone or with non-GM parties.

(B) Previous Delphi Independent Research and Development Projects need to be completed independently of the GAPC as soon as practical.

5.2 Confidentiality

(A) It is recognized that this agreement will be disclosed as part of the contemplated IPO of Delphi.

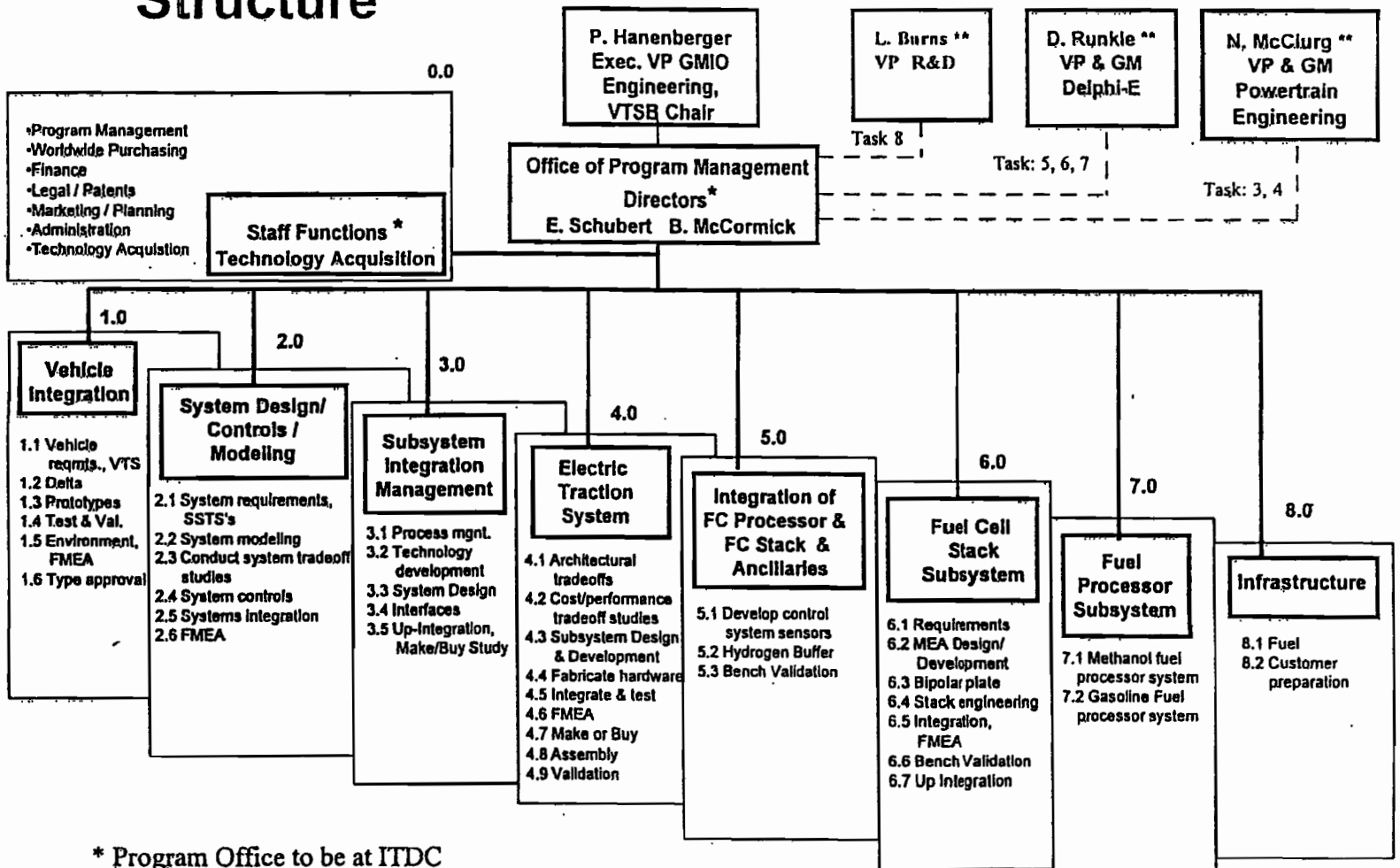
The above Policy Statement is supported and agreed to by the GMPC and by Delphi:

President Council of General Motors Corporation

Date: 8/6/98

Attachment A

Global Alternative Propulsion Center
Structure



* Program Office to be at ITDC

** Steering Committee (Don Runkle will be a development supplier "advisor" after Delphi is no longer partially owned by GM)

s:\exshjpsc\rjw\structur.ppt

General Motors Corporation

Inter-Organization

Date: November 5, 1998

Subject: Fuel Cell Agreement

To: J. T. Battenberg III

From: H. J. Pearce

This is in reply to your request that GM provide a side letter to document and explain what actions will be taken to insure the intent of the GM President's Council that Delphi receive an equitable return on its investment in GM's Fuel Cell Program. The Delphi investment refers to the contribution by Delphi in November 1997 of its intellectual property and advanced engineering resources on fuel cells to the Global Alternative Propulsion Center (GAPC).

As indicated in my August 6, 1998, arbitration of the original fuel cell agreement, GM recognizes that Delphi may require technical assistance, resources and support from GM to competitively manufacture a minimum of 25% of the volume for fuel cell components and sub-systems that Delphi wants to and is able to manufacture. Accordingly, the following actions will be taken by GM to support Delphi in this regard:

1. A non-exclusive license to the presently-existing GAPC technology portfolio shall be provided to Delphi in respect of the fuel cell subsystem (i.e., the fuel processor, stack, sub-system integration, auxiliary components, sensors and controls) consistent with Delphi's research and development activities prior to the formation of the GAPC. This license can only be utilized by Delphi to meet GM's production requirements. Any enablement to commercialize these sub-systems outside of GM would require the prior consent of GM.

2. Going forward, Delphi will have the opportunity to participate in all elements of the fuel cell subsystem development at GAPC. Such participation will require that GAPC provide Delphi with access to its development activities and that Delphi fully contribute the necessary resources and participants to further the development of this activity.

   Provided that Delphi cooperates on this basis as a preferred development partner, it is the expectation of WWP that Delphi will be awarded a minimum of 25% of the volume for those sub-systems and components which have been so co-developed. It is the intention of both GM and Delphi that by having Delphi work together closely as a preferred development partner, all QSP targets will be met or exceeded.

3. In recognition of the unique position Delphi will enjoy as a preferred development partner so that it can receive an equitable return on its prior investment in the program, GM will make its best effort to make available third-party technology licensed or purchased by GAPC to Delphi so that the minimum 25% volume commitment can be achieved. Such technology shall not be utilized to enable any entity outside of GM without the prior consent of GM. Delphi is obligated to work closely with GAPC to insure any third-party concerns on confidentiality, enablement, etc., are addressed.

The foregoing represents the basic elements of GM support to be provided to Delphi to insure that the objectives of the GM/Delphi fuel cell agreement are achieved.

c: H. R. Kutnee

Schedule L – Licensed Software Tools

Cal-DS	Calibration Development System This is a configuration management system for calibration data. Among its functions are receiving a software bundle from DDE for a new version of released software; revision control of calibration data, transferring calibration data values from one software version to another; and releasing production calibration data back into the Delco Electronics Corporation Software Release system for use by Manufacturing, Assembly Plants, Service, etc.
DSDS	Distributed Software Development System This is configuration management system for software development. It provides version control of software modules; build control of software programs; automated dependency information, etc.
Modula-GM	This is a custom software language developed for Delco Electronics Corporation by Intermetrics, Inc. for development of software for embedded systems. Its use is gradually being phased out in favor of C.
CalDef	This is a custom language used within a C program to define calibration constants in a syntax which can be read by the i6lgen tool.
i6lgen	This tool reads output files from C compilers and linkers along with information found in the CalDef portions of C programs and outputs an IEEE695 compatible file. This generated file is then used by tools such as Cal-DS and CalTools (owned by EDS) which are needed in the calibration development activities.
CalRel	This is a tool which generates a "software bundle" which is then input to Cal-DS. Essentially this is the link between the software development activity and the calibration development activity.

Schedule M – Infringement Suits and Claims

(1) LucasVarity, U.S. Patent No. 5,575,358, Brake Caliper
(2) Denso, U.S. Patent Nos. 4,926,076, 4,549,103, CS130D Generator
(3) Autosmart Light Switches, Inc., U.S. Patent Nos. 5,614,788, 5,438,237, 5,185,558, 5,136,209, 4,956,562, Rainsense components
(4) Matsushita Electric Industrial Co. Ltd., U.S. Patent Nos. 4,314,870, 4,312,692, mounting electronic components
(5) RPI, Inc., U.S. Patent No. 5,773,983, Electrical Transfer Switch
(6) Martell, U.S. Patent Nos. 4,949,067, 4,785,282, Caution Light System
(7) Li, U.S. Patent No. 4,946,800, CMOS Submicron Process
(8) Thomson Consumer Electronics Sales GmBH, German Patent Nos. DE 3309406, DE 3432848, 3448043, European Patent Nos. EP 0294511, 0293464, 0233967, and corresponding patents, German Trademark Registration Nos. 1143239, 1145044 and related registrations, Vehicle Radio Data Systems
(9) Saf-T-Net Co., U.S. Patent No. 4,523,178, Vehicle Panic Alarm
(10) Ergenix, Inc., trademark infringement for Delphi use of "Ergenix"
(11) Takata Restraints Systems, U.S. Patent No. 5,110,647, Layer Molded SIR Covers
(12) Gain Technologies, several U.S. Patents relating to gas assisted injection molding
(13) Patent Holding Co., U.S. Patent Nos. 5,501,485, 5,498,026, Air Bag Covers
(14) Takata Restraints Systems, U.S. Patent No. 5,060,971, Air Bag Cover Tear Seam
(15) Autoliv, Patent No. WO96/26087, Head Air Bag Assemblies
(16) INA, European Patent No. 715 681, Tappet
(17) Toyoda Automatic Loom Works, Ltd., Japanese Patent Nos. 2 611 382, 1 515 118, and 1 511 797, Laid Open European Patent Application No. 0 713 972, Compressor (CVC)
(18) Modine, U.S. Patent No. 4,887,588, European Patent No. 0219 974B1, Condenser technology
(19) Rhodia, French Patent EP 0207857, powder consisting of ceria, zirconia, and lanthanum oxide
(20) Fruedenberg, DE Patent No. 42 29 110 C1, Solenoid Valve for Canister Purge
(21) Honeywell, U.S. Patent Nos. DES 339,995, 5,279,155, 4,914,947, 4,856,328, 4,825,693, 4,683,159, 4,651,564, 4,624,137, 4,581,928, 4,556,320, 4,501,144, 4,478,077, 4,472,239, Bi-directional Air Flow Meter
(22) Clifford Electronics, U.S. Patent Nos. 5,650,774, 4,383,242, Vehicle Security Systems
(23) Perfection Spring and Stamping/Exacto, U.S. Patent No. 4,489,327, Return Spring
(24) Mantuuruk, Trade Secret, cold forming of valve lifters
(25) McDougal, U.S. Patent Nos. 4,471,737, 4,718,381, 4,809,662, 4,960,093, 4,993,371, 5,029,567, 5,085,192, 5,133,322, Engine cylinder knock sensing with window sensing including global control

Schedule N – Engineering Documents

(3 pages attached)

Eng. Doc. Types

Document Type		Description
Customer Reqmt's - Vehicle & System		Characterisitics of specific parts or systems
FMEA (Design & Process)		
Eng. Systems Source Code		Product Source Code
Engineering Center Layouts		Facility
Equip. Calibration (Lab)		
Gauge Qualification Reports (Production)		Done continuous
Machine Qualification Reports		Done initially
Forms - Master Index		
Intellectual Property Info		
Meeting Minutes		Any minutes responsible by eng.
Design Review records		Delphi PDP
Gate Review records		Delphi PDP
Organization Charts		
PPAP		
Procedures		
Process Flow Chart		Flow diagram of equipment used to create a part
Product Test Reports		
Product Validation Plans		Validation: Ensuring your product performs to the expected requirements in the customer use environment
Product Validation Results		Summary of the results of appropriate testing, analysis, etc...
Validation File		Virtual Document linking to many diff. documents
Design Verification Plan/Results		Verification: Design outputs meet specifications listed in customer req.
Technical / Business Reports		
Presentations Tech. and Bus.		
Validation Test/Software Algorithms		LAB tests
Production Test/Sotware Algorithms		Production tests
Warranty Analysis Reports		
Project Plans / Schedules		
Project Folder (Notebook)		Virtual Document of many different documents
Process Routings		Routing of material through product creation
Customer Supplied CAD Data		
Design Analysis Model/Data		

Eng. Doc. Types

Analysis Source Code		Custom code
Analysis executables		Custom executables
EBOM (a.k.a. ABL, parts list, stock lists)		
Equip./Tooling Design 2D CAD		
Equip/Tooling Design Math Data		
Product Design 2D CAD		
Product Design Math Data		
Design Analysis Reports / Findings		
Equip./Tooling Drawings/Images		
Product Design Drawings/Images		
Product Action Authorization		
Engineering Release		Product Release
Change Authorization		Product change authorization (EWO)
Work Orders/Requests		Financial & Work description
Process Control Plans		
Eng. Sale Samples Orders/Shipping Doc.s		
Purchasing Requisitions		Description of what you ordered
Eng. Forecast (Financial, etc.)		
BOP (level 1,2,3)		
Test Incident Reports		Global, issue resolution team is working on this
Quality Control Instructions (QCI)		
Quality Specifications (referenced on product dwgs)		pertaining to the quality requirments related to end product
Process Specifications		pertaining to the build process of end product includes Mixed specifications
Test Specifications (referenced on product dwgs)		pertaining to the test requirements that parts must meet
Material Specifications (referenced on product dwgs)		End Product Material Specifications, Material spec group is working on this
Purchase specifications		Along with M-Specs, material description for ordering, Material spec group is working on this
Equipment Specifications		pertaining to the equipment to build parts. End-product testing equipment
Tooling Specifications		pertaining to the tooling to build parts
Controls Specifications		pertaining to the controls on equipment used to build parts
Requirements Templates		inputs to drive outputs described in cust/vehicle specifications

Eng. Doc. Types

Delphi PDP Documents		Product Development Process
Process Layout		Physical arrangement of equipment
PSPT		
Spare Parts List		Spare parts related to mfg. equipment
PM Plans		Preventative Maintenance
Technical Benchmarking Reports		Reports done comparing our product/process to competitors
Standards		
Regulatory St'ds (MVSS, etc.)		
Customer Specifications (GM, Chrysler, Ford, Opel, Toyota,.....)		Common requirements for all parts supplied to customer
Specifications: (SAE, ASTM, AA,)		
Design Standards		
Legal Standards		
International Standards (ISO, JASCO,.....)		
QS-9000 Standard		
GP Standards		
GMUTS Standards		